

WHAT IS CLAIMED IS:

1. A light valve for use in an imaging system, the light valve comprising a plurality of individually driven channels, the channels having non-uniform size in accordance with a pre-determined regular pattern to be imaged.

2. The light valve of claim 1, wherein the light valve has at least one low resolution channel corresponding to a low resolution feature in the regular pattern.

3. The light valve of claim 2, wherein the low resolution channel comprises a plurality of light valve elements connected to a driver.

4. The light valve of claim 2, wherein the light valve has at least one high resolution channel corresponding to an edge of the low resolution feature.

5. The light valve of claim 4, wherein the high resolution channel comprises at least one light valve element connected to a driver.

6. The light valve of claim 5, comprising at least one high resolution channel adjacent to each low resolution channel.

7. The light valve of claim 6, comprising at least one high resolution channel located on either side of each low resolution channel.

8. The light valve of claim 4, comprising a plurality of uniform regularly spaced light valve elements and wherein groups of elements are connected to form at least one low resolution channel and at least one high resolution channel.

9. The light valve of claim 8, wherein at least a portion of the plurality of light valve elements are not connected to either a low resolution channel or a high resolution channel.

10. The light valve of claim 2, wherein the light valve comprises
5 a plurality of low resolution channels spaced apart in accordance with a plurality of low resolution features in the regular pattern.

11. The light valve of claim 1, used for imaging color filter elements on a color filter substrate.

12. The light valve of claim 1, wherein the light valve is one
10 of:

a PLZT light valve;

a TIR light valve; or

a grating light valve.

13. An imaging system for imaging a regular pattern of features
15 onto a substrate, the imaging system comprising:

a line illuminator;

a light valve having a plurality of individually driven channels, the channels having non-uniform size in accordance with a pre-determined regular pattern to be imaged;

20 a driver connected to each channel; and

a lens for imaging the light valve onto the substrate.

14. A method for imaging a regular pattern of features with a multi-channel imaging head, comprising:

analyzing the pattern to identify the features;

imaging a body portion of the feature with a low resolution channel; and

imaging an edge of the feature with at least one high resolution
5 channel.

15. The method of claim 13, wherein the pattern is a single color separation of a multi-color image.

16. The method of claim 13, wherein a plurality of features are imaged simultaneously.

10 17. The method of claim 13, further comprising:

providing a substrate for receiving the imaged features; and

placing a dye donor element over the substrate.

18. A method of fabricating a light valve for imaging a regular pattern of features with a multi-channel imaging system, comprising:

15 analyzing the pattern to identify the features;

fabricating a plurality of uniform regularly spaced light valve elements on a light valve substrate; and

connecting groups of elements to form low resolution channels and high resolution channels, the channels corresponding to the pattern.